

CLAIMS

What is claimed is:

Sub 1. A method for assigning private Internet Protocol ("IP") addresses to network
5 devices in a cluster, comprising the steps of:

reading the Media Access Control ("MAC") address of a first network device;
calculating a private IP address as a function of said MAC address;
assigning said private IP address to said first network device;
communicating with said first network device using said private IP address.

2. The method according to claim 1, wherein said first network device is a LAN
switch.

3. The method according to claim 1, wherein said private IP address is calculated by
15 adding the values of one or more bytes of said MAC address to a base private IP
address.

4. The method according to claim 3, wherein said first network device is a LAN
switch.

5. A method for automatically correcting Internet Protocol ("IP") address conflicts among network devices, comprising the steps of:

(1) detecting a conflict between a private IP address used by a first network device which is a member of a cluster of network devices and an IP address used by a second network device which is not a member of said cluster;

(2) changing said private IP address;

(3) determining whether said conflict still exists, and;

(4) if said conflict still exists, repeating steps (2) – (3) until said conflict is resolved or until it is determined that said conflict cannot be resolved.

6. The method according to claim 5, wherein said first network device is a LAN switch.

7. The method according to claim 5, wherein step (2) is performed by incrementing the value of the second byte of said private IP address if the value of said second byte is less than the maximum allowed value.

8. The method according to claim 5, wherein step (2) is performed by incrementing the value of the third byte of said private IP address if the value of said third byte is less than the maximum allowed value.

9. The method according to claim 5, wherein step (2) is performed by incrementing the value of the fourth byte of said private IP address if the value of said fourth byte is less than the maximum allowed value.

10. The method according to claim 5, wherein step (2) is performed by incrementing the value of the second byte of said private IP address if the value of a second byte counter is less than the maximum allowed value, then incrementing the value of the third byte of said private IP address if the value of a third byte counter is less than the maximum allowed value and the value of said second byte counter is equal to the maximum allowed value, then incrementing the value of the fourth byte of said private IP address if the value of a fourth byte counter is less than the maximum allowed value and the value of said second byte counter is equal to the maximum allowed value and the value of said third byte counter is equal to the maximum allowed value.

11. The method according to claim 6, wherein step (2) is performed by incrementing the value of the second byte of said private IP address if the value of said second byte is less than the maximum allowed value.

5 12. The method according to claim 6, wherein step (2) is performed by incrementing the value of the third byte of said private IP address if the value of said third byte is less than the maximum allowed value.

13. The method according to claim 6, wherein step (2) is performed by incrementing the value of the fourth byte of said private IP address if the value of said fourth byte is less than the maximum allowed value.

14. The method according to claim 6, wherein step (2) is performed by incrementing the value of the second byte of said private IP address if the value of a second byte counter is less than the maximum allowed value, then incrementing the value of the third byte of said private IP address if the value of a third byte counter is less than the maximum allowed value and the value of said second byte counter is equal to the maximum allowed value, then incrementing the value of the fourth byte of said private IP address if the value of a fourth byte counter is less than the maximum allowed value and

the value of said second byte counter is equal to the maximum allowed value and the value of said third byte counter is equal to the maximum allowed value.

15. A cluster of network devices, comprising:

- 5 a commander network device having a public IP address;
a member network device having a unique private IP address automatically assigned by said commander network device.

16. The cluster of network devices according to claim 15, wherein said commander network device is a LAN switch.

17. The cluster of network devices according to claim 15, wherein said commander network device is a LAN switch and said member network device is a LAN switch.

15 18. The cluster of network devices according to claim 15, wherein said private IP address is calculated by adding the values of one or more bytes of the MAC address of said member network device to a base private IP address.

19. The cluster of network devices according to claim 18, wherein said commander
20 network device is a LAN switch.

20. The cluster of network devices according to claim 18, wherein said commander network device is a LAN switch and said member network device is a LAN switch.

5 21. A cluster of network devices, comprising:

a commander network device having a public IP address;

a member network device having a unique private IP address automatically

assigned by said commander network device, wherein said commander network device is capable of automatically detecting and correcting IP address conflicts involving said private IP address.

22. The cluster of network devices according to claim 21, wherein said commander network device is a LAN switch.

15 23. The cluster of network devices according to claim 21, wherein said commander network device is a LAN switch and said member network device is a LAN switch.

24. The cluster of network devices according to claim 21, wherein said commander network device further comprises logic for iteratively modifying said private IP address

until said IP address conflict is resolved or until it is determined that said conflict cannot be resolved.

25. The cluster of network devices according to claim 24, wherein said commander
5 network device is a LAN switch.

26. The cluster of network devices according to claim 24, wherein said commander
network device is a LAN switch and said member network device is a LAN switch.

27. A first network device capable of automatically assigning a private Internet
Protocol ("IP") address to a second network device, comprising:

means for reading the Media Access Control ("MAC") address of said second
network device;

means for calculating a private IP address as a function of said MAC address;

means for assigning said private IP address to said second network device;

means for communicating with said second network device using said private IP
address.

28. The apparatus according to claim 27, wherein said first network device is a LAN
20 switch.

29. The apparatus according to claim 27, wherein said first network device is a LAN switch and said second network device is a LAN switch.

5 30. The apparatus according to claim 27, wherein said means for calculating said private IP address adds the values of one or more bytes of said MAC address to a base private IP address.

31. The apparatus according to claim 30, wherein said first network device is a LAN switch.

32. The apparatus according to claim 30, wherein said first network device is a LAN switch and said second network device is a LAN switch.

15 33. A first network device capable of automatically correcting Internet Protocol ("IP") address conflicts among network devices, comprising:

means for detecting a conflict between a private IP address used by a second network device which is a member of a cluster of network devices and an IP address used by a third network device which is not a member of said cluster;

means for iteratively changing said private IP address and determining whether said conflict still exists until either said conflict is resolved or until it is determined that said conflict cannot be resolved.

5 34. The apparatus according to claim 33, wherein said first network device is a LAN switch.

35. The apparatus according to claim 33, wherein said first network device is a LAN switch and said second network device is a LAN switch.

36. A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method for assigning private Internet Protocol ("IP") addresses to network devices in a cluster, the method comprising the steps of:

15 reading the Media Access Control ("MAC") address of a first network device;
calculating a private IP address as a function of said MAC address;
assigning said private IP address to said first network device;
communicating with said first network device using said private IP address.

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